Abstract:
We investigated the potential of Cine and 2D Tagged Cardiac Magnetic Resonance (CMR) Imaging to distinguish stunned from necrotic left ventricular (LV) myocardium in the early postischemic phase in an open-chest animal model (N = 12). Reversible and permanent occlusion of the LAD coronary artery resulted in global LV dysfunction in both groups without significant differences. LAD perfused segments revealed significant higher values for end systolic wall thickening (ESWT) and percentual systolic wall thickening in animals with stunned myocardium. Analysis of strain parameters showed significant regional differences (maximal principal strain lambda1, deviation angle beta) between postischemic and remote myocardium within both groups, however results were not significantly different comparing animals with stunned myocardium to animals with myocardial necrosis. In conclusion, at rest neither global LV functional nor regional strain parameters derived from Cine and 2D Tagged CMR Imaging can distinguish animals with short-term stunned myocardium from respective animals with necrotic myocardium. Diagnostic value of ESWT is limited due to the spatial resolution of the gradient-echo sequence used.
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